Appendix F:
Cost Engineering

Upper York Creek Ecosystem Restoration Feasibility Study

Cost Estimate Section
August 10, 2006

1. INTRODUCTION

In order to support the plan formulation of the solution to address a specific public need a total of 4 baseline cost estimates were developed each for the 4 viable alternatives 1, 2A, 2B, and 3 selected during the Feasibility Study Phase. In considering to be in line with future document to be developed for project authorization we selected the Cops' standard estimate program MCACES, as in every case, to develop the cost estimates (Ref. ER 1110-2-1150). We are using MCACES the 2nd generation also known as MII software, version 2.2.1, (MCACES stands for Micro-Computer Aided Cost Estimating System) the latest version of the program developed by Tri-Service Cost Engineering Workshop (sponsored by Corps). This latest version is required to take over all cost estimating needs in all new projects and eventually to phase out all old versions of MCACES, i.e. MCACES Gold and MCACES for Window which we are all familiar with.

2. BASIS OF COST

Since we are preparing the estimate to support future contract award the government formal format of the line item breakdown structure so called Civil Work Breakdown Structure (CWBS) was used here (Ref. ER 1110-2-1302).

Bare Cost Resources:
The cost data used in our program from MCACES Library Pool are listed in the following. They are the latest and considered current for developing our costs.

1) Cost Book English 2004 (Usually known as Unit Price Book, next version will be developed in late 2006)
2) Equipment Region 7 2003 (Same as Construction Ownership and Operation Expense Schedule Region 7 West Book)
3) Labor National 2003 (National Labor Rate Average)

They are all developed and supported by Tri-Service Cost Engineering Workshop.

Special Cost Data:
Following special cost data were used to override the source date in consideration of the current pricing condition.

1) Gasoline $3.50/gal.
2) Diesel Fuel (off-road) $3.30/gal.
3) Diesel Fuel (on-road) $ 3.40/gal.
4) Sales Tax 7.8% (Avg).
5) Cost of Money 4.25%.
6) Landfill Disposal Fee $30.00/CY is quoted by Clover Flat Landfill (local) for the type of soil with naturally occurring asbestos content.

Pricing Level:

Since this is a budgetary estimate for Feasibility study report for a construction cost less than 10,000,000 so a contingency of 25% is applied. The price is considered current and effective as of today. Escalation were not added at this time and can be considered as an element to be added in the future when it is needed.

Tiers of Contract Work and Mark-ups

Prime Contractor	Mark-up: JOOH-15%; HOOH-4%; Profit-8%; Bond-2%
Earth Moving Sub	Mark-up: JOOH-15%; Profit-8%; Bond-2%
Riprap Sub/Sub	Mark-up: JOOH-15%; Profit-8%; Bond-2%
Inclined Screw Anchor Sub/Sub	Mark-up: JOOH-15%; Profit-8%; Bond-2%
Vegetation and Planting Sub	Mark-up: JOOH-15%; Profit-8%
Fish Ladder Maint. Crew Sub/Sub	Mark-up: JOOH-15%; Profit-8%
Trucking Sub	Mark-up: JOOH-15%; Profit-8%; Bond-2%
Landfill Sub	Mark-up: JOOH-15%; Profit-8%
Decon Crew Sub	Mark-up: JOOH-15%; Profit-8%

JOOH stands for Job Site (field) Overhead
HOOH stands for Home Office Overhead

3. SUMMARY

O & M costs to maintain the channels for 50 years' of life time for all 4 Alternatives are included as per recommendation from ER 1110-2-1150. Mitigation Maintenance and Service Cost covered up to the 4th year is also included for all 4 alts. The other O&M cost is the 50 years life time maintenance cost of the newly constructed Fish Ladder in only Alt. 3. Bottom line Total Cost for all 4 Alternatives are: Alt 1 - $7,723,496; Alt 2A - $5,937,658; Alt 2B - $5,921,857; Alt 3 - $5,991,594. These are all extended Project Cost but did not include any SIOH cost (S & A construction oversight charge). It is unique that only Alt 3 has fish ladder and the 50 years' fish ladder life time maintenance cost of $898,952 in which the cost of inspection of site, removal of debris, and repair the fish ladder concrete structure were all included. We included only the cost to get rid of excess material, i.e. extra native material downstream of dam, Dam material, sediment behind the dam to be removed within

project scope, by the method as studied and suggested by City of Helena whereby to have the 75% of the total volume of the excess material placed at lower reservoir and the 25% remainder to be disposed of at local landfill named Clover Flat Landfill. Since the original material contains naturally occurring asbestos fiber the so called wet method of trucking and hauling method is to be used to transport the material. The cost of de-contaminating the trucks' tires during transporting operation was included. Costs of works at lower reservoir after receiving the material as well as the cost of sorting the material in order to separate the cobble fraction from the sediment were all included. The cost to build the leaky wall for reservoir turbidity control was not considered since it is believed to be outside of Corp's responsibility at this time (this is one of the detail related to the work around the lower reservoir described by City's engineering). In clearing and grubbing the costs of tree removal were included. All line item cost data for vegetation and planting were originated from Mr. James Lee SPK. Since it is in spreatsheet format so every single item was input to MCACES by hand.

4. ATTACHMENT

4 printouts of MII MCACES in Simplified Submittal Report format for Alternatives 1, 2A, 2B, and 3 are attached herewith.

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